GEMRAIN
CONSULTING

PROFESSIONAL CERTIFICATE IN DATA ANALYTICS WITH MICROSOFT POWER BI

Submission to:
GRADUATE SCHOOL OF BUSINESS UNIVERSITI SAINS MALAYSIA

Presented by :
Gerald Hoong
CEO, GemRain Consulting

Introduction to the Professional Certificate in Data Analytics with Microsoft Power BI

In an era where data is as valuable as currency, the ability to analyze, interpret, and present data effectively is crucial across all industries. GemRain Consulting proudly offers the "Professional Certificate in Data Analytics with Microsoft Power BI," a program meticulously crafted to transform beginners into proficient data analysts.

This comprehensive certification journey is structured into four progressive modules, each designed to build a robust foundation in both theory and practical application:

Module 1: Fundamentals of Data Analytics using Microsoft Power BI - Participants will embark on their data journey, gaining a solid grounding in data analytics principles and an introduction to the powerful tools provided by Microsoft Power BI.

Module 2: Mastering Formulas with Data Analysis Expressions (DAX) - This module delves deeper into the language of data with DAX, enabling participants to perform complex data calculations with ease and accuracy.

Module 3: Data Modeling Essentials in Microsoft Power BI with DAX - Building upon the previous module, learners will discover the intricacies of data modeling, a critical skill set for any data professional, tailored specifically for Power BI, using the gained knowledge of DAX.

Module 4: Data Visualization and Storytelling with Power BI Dashboards - The capstone module empowers participants to turn data into compelling narratives, using Power BI's sophisticated visualization tools to create dashboards that tell impactful stories and drive decision-making.

Each module is designed not just to impart knowledge but to ensure its practical application, with a strong emphasis on real-world scenarios. Upon successful completion of the final assessments, candidates will be awarded the "Professional Certificate in Data Analytics with Microsoft Power BI," signifying their readiness to meet the industry's demands for data-savvy professionals.

MODULE 1:
FUNDAMENTALS OF DATA ANALYTICS
USING MICROSOFT POWER BI

Duration: 2 days; Instructor-led

WHAT WILL YOU LEARN

This instructor-led adventurous workshop is designed for audiences to be equipped with the necessary knowledge and skills to kickstart their analytical journey with Microsoft Power BI. You will be guided from the stage of connecting data, transforming data, and visualizing your data.

OBJECTIVES

After completing this course, students will be able to:
- Describe key features of Microsoft Power BI
- Understand how data are connected to Microsoft Power BI
- Massage, cleanse, format and transform data
- Visualizing data using reports and dashboards

PREREQUISITES

This course is for beginners and users with little or no exposure of basic programming concepts, little or no knowledge of data warehouse schema, an awareness of key business priorities such as revenue, profitability, and financial accounting, and technically familiar with Microsoft Excel.

COURSE CONTENTS

Module 1:   Microsoft Power BI as a Service
- What is Power BI?
- The Power BI service and its ecosystem
- Product and subscription information
- Familiarizing with Microsoft Power BI app and service

Module 2:   Getting to Know Your Data
- Using Excel as a Power BI data source
- Using databases as a Power BI data source
- Understanding the Power BI dataset
- Importance of table relationships

Module 3:   Data Transformations using Power Query
- Power BI Desktop queries
- Cleansing data and transformations
- Consolidation of data through appends and merges

Module 4:   Introduction to DAX
- What is DAX?
- Calculated columns vs. measures
- What are quick measures?
- Performing simple calculations

Module 5:   Visualizing Your Data
- Creating Power BI reports
- Creating Power BI dashboards
- Common visuals and their usage
- Selections and Bookmarks

Formative Assessments (60%):

1. **Quizzes** at the end of each module to review key concepts.

2. **Hands-On Labs** using Power BI on sample datasets to apply the concepts of data connections and transformations.

3. **Group Discussions** on the potential impacts of data analytics in various industries.

Summative Assessments (40%):

1. **Practical Test** where students create a basic Power BI report and dashboard using a given dataset to showcase their understanding of the tool and data visualization principles.

2. **Project** where students must connect to a data source, transform the data using Power Query, and create a report that includes at least one measure calculated with DAX.

MODULE 2:
MASTERING FORMULAS
WITH DATA ANALYSIS EXPRESSIONS (DAX)

Duration: 3 days; Instructor-led

WHAT WILL YOU LEARN

This workshop is a complete course about the DAX language. DAX is the native language of Power BI, Power Pivot for Excel, and SSAS Tabular models in Microsoft SQL Server Analysis Services. The training is aimed at users of Power BI, Power Pivot for Excel, and at Analysis Services developers that want to learn and master the DAX language. This course covers the latest version of DAX 2019.

OBJECTIVES

After completing this course, students will be able to:
- Understand all the features of the DAX language
- Write formulas for common and advanced scenarios

PREREQUISITES

Attendees need to have a basic knowledge of the data modeling in Power Pivot for Excel, or Power BI Desktop, or Analysis Services Tabular modeling.

COURSE CONTENTS

Module 1:   Introduction to DAX
- What is DAX?
- DAX data types
- Calculated columns
- Measures
- Aggregation functions
- Counting values
- Conditional functions
- Handling errors
- Using variables
- Mathematical functions
- Relational functions

Module 2:   Table Functions
- Introduction to table functions
- Filtering a table
- Ignoring filters
- Mixing filters
- DISTINCT Function
- How many values for a column?
- ALLSELECTED function
- RELATEDTABLE function
- Tables and relationships
- Tables with one row and one column
- Table variables

Module 3:   Evaluation Contexts
- Introduction to evaluation contexts
- Filter context
- Row context
- Context errors
- Filtering a table
- Using RELATED in a row context
- Ranking by price
- Evaluation contexts and relationships
- Filters and relationships

Module 4:   CALCULATE Function

- Introduction to CALCULATE function
- CALCULATE function examples
- CALCULATE function recap
- What is a filter context?
- KEEPFILTERS function
- CALCULATE operators
- Use one column only in a compact syntax
- Variables and evaluation contexts

Module 5:   Iterators

- Working with iterators
- MINX and MAXX functions
- Useful iterators
- RANKX function
- ISINSCOPE function

Module 6:   Time Intelligence in DAX

- What is time intelligence?
- Time intelligence functions
- DATEADD function
- DATESINPERIOD function
- Running total
- Mixing time intelligence functions
- Semi-additive measures
- Calculation over weeks

Module 7:   Hierarchies in DAX

- What are hierarchies?
- FILTER and CROSSFILTER function
- Percentages over hierarchies
- Parent-child hierarchies

Module 8:   ALLSELECTED and Shadow Filter Contexts

- ALLSELECTED function revisited
- Shadow filter contexts

Module 9:   Segmentation

- Static segmentation
- Circular dependency in calculated tables
- Dynamic segmentation

Module 10:   Many-to-many Relationships

- How to handle many-to-many relationships
- Bidirectional filtering
- Expanded table filtering
- Comparison of the different techniques

Formative Assessments (60%):

1. **Hands-On Labs**: A series of graded labs where students apply DAX functions to solve specific problems, like calculating average sales or working with time intelligence functions.

2. **Peer Reviews**: Students review and critique each other's DAX formulas, fostering collaboration and deeper understanding.

3. **In-Lecture Short Assignments**: Short scenarios requiring the creation of DAX formulas to encourage continuous engagement and problem-solving.

Summative Assessments (40%):

1. **Practical Test**: A comprehensive test where students must demonstrate proficiency by writing and debugging DAX formulas within Power BI.

2. **Project**: An end-of-module project where students create complex measures using DAX, incorporating multiple functions and demonstrating familiarity with data calculations as a precursor to data modeling.

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MODULE 3:
DATA MODELING ESSENTIALS
IN MICROSOFT POWER BI WITH DAX

Duration: 2 days; Instructor-led

WHAT WILL YOU LEARN

This workshop is a complete course about building the most optimal data models for your Power BI reports. It introduces the audience to the basic techniques of shaping data models in Power BI. It offers many real-world examples that will help you look at your reports in a different way – pretty much like experienced data modelers do.

OBJECTIVES
After completing this course, students will be able to:
- Learn the vast techniques of shaping and building a correct data model to be used in Power BI.
- Understand the common challenges and mistakes that people have in creating a data model.
- Learn the most optimum way of building a sustainable data model for Power BI reports.

PREREQUISITES

Attendees preferably have a basic knowledge of data modeling in Power Pivot for Excel, or Power BI Desktop, and most importantly, DAX.

COURSE CONTENTS

Module 1:   Introduction to Data Modeling
- What is Data Modeling?
- Analytical limits
- Increasing the analytical power
- Introducing the facets of data modeling
- Leveraging the data model

- Normalization and denormalization
- Facts and dimensions
- Introducing star schemas
- Chains of relationships
- How many dimensions?
- Why data modeling is useful?

Module 2:   Header / Detail Tables
- Introduction to header / detail schemas
- Bidirectional filtering is not the way!
- Denormalizing the discount
- Back to star schema

Module 3:   Working with Date and Time
- Date attributes in the fact table
- Building a date dimension
- CALENDARAUTO function
- The model with a date dimension
- Automatic date grouping in Power BI
- Quick calculations in Power BI Desktop
- Disable automatic date columns
- Handling multiple dates
- Multiple date tables
- Multiple date tables with multiple fact tables
- Multiple relationships with date
- Handling date and time
- Computing with working days
- Create a holidays table (one country)
- Create a holidays table (multiple countries)
- Weekends are not always the same!
- Handling special periods of the year
- Non-overlapping periods in the model
- Non-overlapping special periods
- Overlapping period measure

Module 4:   Using Snapshot Tables

- What is a snapshot table?
- Sales versus inventory in the same model
- Non-additive measures
- LASTDATE function does not work here!
- Optimizing performance
- Snapshots and granularity
- Transition matrix
- Parameter tables

Module 5:   Date and Time Intervals

- What are intervals?
- Solving with DAX... too complex!
- Changing granularity
- Split hours AND amount!
- Analyzing active events
- Open orders: the starting model
- Open orders with DAX
- Open orders in a snapshot table
- Events with different durations
- Daily salary in DAX
- Precompute the values

Module 6:   Many-to-Many Relationships

- What are many-to-many relationships?
- Possible solutions to this complex scenario
- Bidirectional filtering
- Using CROSSFILTER function
- Using expanded table filtering
- CROSSFILTER versus expanded tables
- Understanding non-additivity
- Cascading many-to-many

Module 7:   Different Granularities

- Dimensions define granularity
- Analyzing budget data
- Reduce granularity on all the tables
- Using DAX to move the filters
- Filtering through relationships
- Using the correct column to slice
- Leveraging relationships
- Checking granularity in the report
- Hiding or reallocating?

Formative Assessments (60%):

1. **Hands-On Labs** for each topic covered, such as creating star schemas, working with date and time functions, and managing many-to-many relationships.

2. **Chapter Reflections** where students document their learning progress and insights from the labs and lectures.

3. **Group Workshops** where students collaborate to solve common data modeling problems and present their solutions.

Summative Assessments (40%):

1. **Data Modeling Project**: Students will be tasked to design a comprehensive data model for a given scenario, implementing techniques such as normalization, handling different granularities, and many-to-many relationships.

2. **Practical Test**: A thorough examination that tests understanding of key data modeling concepts, best practices, and the application of DAX in data modeling

MODULE 4:
DATA VISUALIZATION & STORYTELLING
WITH POWER BI DASHBOARDS

Duration: 1 day; Instructor-led

WHAT WILL YOU LEARN

Presenting data with Microsoft Power BI is simple as anyone can draw charts on the canvas and start visualizing numbers graphically. Unfortunately, it is not easy to design a good and appealing dashboard. This 1-day course is designed for Power BI creators who wish to learn how to create beautiful and effective dashboards, while avoiding all the common design pitfalls and mistakes.

OBJECTIVES

After completing this course, students will be able to:

- Learn the 7 golden rules of dashboard design concepts in Microsoft Power BI.
- Obtain a visual chart reference for different types of dashboard objectives and use them in their day-to-day lives.

PREREQUISITES

Attendees preferably have a basic knowledge of using Microsoft Power BI Desktop to create reports and dashboards. It is also a good course for people who want to kickstart their Power BI reporting and dashboard ventures.

COURSE CONTENTS

Intro: Strategizing a Power BI Dashboard
- What people think a dashboard is and what it really is.
- The 7 Golden Rules of dashboard design.

Rule 1:   Design for a Target
- Design each dashboard for a single target person, group or specific goal.

Rule 2:   Keep Everything at a Glance
- Design each dashboard to present all information in a single non-scrollable screen.

Rule 3:   Keep it Simple
- The foundation of a good design is simplicity!

Rule 4:   Align All Elements
- Always align all elements on the dashboard.

Rule 5:   Be Consistent in Your Design
- Repetition means familiarity.
- Implement a pattern of design.

Rule 6:   Highlight the Most Relevant Information
- A good dashboard contains only information that is relevant to its scope.

Rule 7:   Be Clear
- A good dashboard should use simple terminology and explain all abbreviations.

Formative Assessments (60%):

1. **Mini-Projects**: Create a series of small dashboards focusing on different visualization techniques and the application of the 7 golden rules of dashboard design.

2. **Peer Feedback Sessions**: Regular sessions where students present their dashboards and receive constructive feedback.

3. **Participation in Class Discussions**: Active participation in forums discussing design strategies and problem-solving for common dashboard challenges.

Summative Assessments (40%):

1. **Comprehensive Dashboard Project**: A final project where students must design a full dashboard from scratch, applying all 7 golden rules, tailored for a specific business scenario provided by the instructor.

2. **Oral Examination**: An oral exam where students present their dashboard to the class, justifying their design choices and the story their data tells.

THE CORPORATE PROFILE

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GemRain Consulting Sdn Bhd

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GemRain Consulting Sdn Bhd

ABOUT COMPANY

GemRain Consulting is a dynamic and innovative skills development provider in Petaling Jaya, Selangor, Malaysia, that specializes in helping businesses of all sizes achieve employee skills development goals and overcome challenges. We pride ourselves on providing high-quality, customizable training services to each one of our clients.

Founded in 2017 by the CEO and master trainer Gerald Hoong, the company is registered as GemRain Consulting Sdn. Bhd.

Our partners of experienced trainers, with an initial focus on Microsoft technologies, have a diverse range of skills and expertise. We employ best practices developed over the years and are highly committed to delivering quality advice, sales, and support to assist our clients in achieving the maximum return on investments (ROI). We work closely with our clients to understand their unique needs and develop custom solutions to help them succeed.

At GemRain Consulting, we believe that every business has the potential to thrive and grow. We are dedicated to helping our clients unlock that potential and reach their total capacity.

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WHY US

There are many reasons why people require training in the workplace. Some of the reasons are to:

- Orientate new employees.
- Provide long-term professional development.
- Upgrade knowledge required for the job.
- Introduce news skills to experienced employees.
- Prepare for new job opportunities.

Employees who feel appreciated and challenged through training opportunities may feel more satisfied towards their jobs.

OUR CLIENTS BENEFIT FROM:

- A proven client service model: locally owned and operated.
- Considerable range of combined technical knowledge and experience.
- Responsive in catering to business needs.
- Cost-effective services.
- Easier budgeting.

We are committed to ensuring that our often very busy business development team is resourced appropriately for the ultimate benefit of our clients.

Motto
Tailored, just for you.

Vision
We lead the creation of learning as the new essential of life.

Mission
Value – delivering a top-notch quality learning experience.
Tailor-made – highly configurable learning options at your fingertips.
Result-driven – every learner's achievement is our passion.
Trendsetter – the belief of learning is an urgent element in this era.

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FOUNDER MESSAGE

Gerald Hoong
Founder & Master Trainer
(MCP, MCAD, MCSD, MCPD, MCTS, MCITP, MCSA, MCSE, MCA, MCE, MCT)

Dear valued clients and partners,

I am excited and committed to leading GemRain Consulting, a company dedicated to providing exceptional skills development services to businesses of all sizes.

Our team of experienced professionals has a track record of success in various industries. We are confident in our ability to help our clients achieve their goals and grow their businesses. We offer exclusive customizable training services to meet different clients' needs.

We are committed to delivering the highest quality service and value to our clients, and we look forward to working with you to achieve your business objectives.

Thank you for considering GemRain Consulting for your consulting needs. We hope to hear from you soon.

Sincerely,
Gerald Hoong
CEO, GemRain Consulting

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HOW
WE WORK

1

Well-defined company values:
Identify the core values that align with our company's mission and that we want to prioritize in our working culture. This will help guide decision-making and ensure all employees work towards the same goals.

2

Foster open communication:
Encourage open and honest communication among employees and with leadership. This is achieved through regular check-ins, feedback sessions, and open-door policies.

3

Encourage collaboration and idea-sharing:
Create opportunities for employees to collaborate and share ideas. This could include brainstorming sessions or other collaborative initiatives.

HOW
WE WORK

4

Prioritize work-life balance:
We implement flexible scheduling and support for healthy work-life integration. This includes remote work options, time off policies, and wellness initiatives.

5

Invest in training and development:
As a training company, we create ongoing training and development opportunities to help employees grow and develop in their careers. This could include in-house training sessions, external workshops, and professional certifications.

6

Recognize and reward achievement:
We show appreciation for our employee's hard work and achievements through recognition programs and other rewards. This can help motivate and engage the employee and foster a positive working culture.

OUR PRODUCTS

- Microsoft
- Microsoft (Custom-Developed Course)
- Blockchain
- Cobit
- CompTIA
- Enterprise Architecture
- ITIL
- Python
- Scrum
- Service Desk
- Lean Six Sigma
- VMware
- Web & Mobile Development
- Human Development Skills (Softskills)

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OUR PARTNERSHIPS

- Microsoft Certified Partner
- OpenEDG Python Institute Education Partner
- CompTIA Authorized Delivery Partner
- PeopleCert
- Axelos
- Cybertronium

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GemRain Consulting focuses on providing our clients with a long-term learning and skill development relationship. These long-term relationships allow us to understand our clients' unique needs and requirements and offer a high level of service. We can provide cost-effective service and support, enabling you to get the best from your investment. We utilize experienced instructors and innovative teaching methods to ensure the programs are engaging and effective.

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